

WHAT IS CLAIMED:

1. A charging device comprising:

a charging member configured to charge an image carrier,
5 the charging member being applied with a voltage including an
alternating current voltage superimposed on a direct current
voltage,

wherein a following relationship is satisfied:

$$7 \leq f/v \leq 17 \quad (1)$$

10 where "f" is a frequency (Hz) of the alternating current
voltage, and "v" is a moving speed (mm/sec) of the image carrier.

2. The charging device according to claim 1, wherein a
following relationship is further satisfied:

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$$9 \leq f/v \leq 15. \quad (2)$$

3. The charging device according to claim 1, wherein the
relationship (1) is satisfied at least when the charging member
charges an image forming area of the image carrier.

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4. The charging device according to claim 2, wherein the
relationship (2) is satisfied at least when the charging member
charges an image forming area of the image carrier.

25 5. The charging device according to claim 1, wherein a
following relationship is satisfied when the charging member

charges an area of the image carrier other than an image forming area of the image carrier:

$$0.5 \leq f/v \leq 7. \quad (3)$$

5 6. The charging device according to claim 2, wherein a following relationship is satisfied when the charging member charges an area of the image carrier other than an image forming area of the image carrier:

$$0.5 \leq f/v \leq 7. \quad (3)$$

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7. The charging device according to claim 1, wherein the charging member is disposed opposite to the image carrier spaced by a minute gap.

15 8. The charging device according to claim 1, wherein the charging member comprises a rotatable charging roller.

9. An image forming process cartridge for use in a main body of an image forming apparatus, comprising:

20 an image carrier configured to carry an image; and
a charging member configured to charge the image carrier, the charging member being applied with a voltage including an alternating current voltage superimposed on a direct current voltage,

25 wherein a following relationship is satisfied:

$$7 \leq f/v \leq 17 \quad (1)$$

where "f" is a frequency (Hz) of the alternating current voltage, and "v" is a moving speed (mm/sec) of the image carrier,

wherein the image carrier and the charging member are
5 integrally accommodated in the image forming process cartridge,
and the image forming process cartridge is detachably attached
to the main body of the image forming apparatus.

10. The image forming process cartridge according to claim
10 9, wherein a following relationship is further satisfied:

$$9 \leq f/v \leq 15. \quad (2)$$

11. The image forming process cartridge according to claim
9, wherein the relationship (1) is satisfied at least when the
15 charging member charges an image forming area of the image
carrier.

12. The image forming process cartridge according to claim
10, wherein the relationship (2) is satisfied at least when the
20 charging member charges an image forming area of the image
carrier.

13. The image forming process cartridge according to claim
9, wherein a following relationship is satisfied when the

charging member charges an area of the image carrier other than an image forming area of the image carrier:

$$0.5 \leq f/v \leq 7. \quad (3)$$

5 14. The image forming process cartridge according to claim 10, wherein a following relationship is satisfied when the charging member charges an area of the image carrier other than an image forming area of the image carrier:

$$0.5 \leq f/v \leq 7. \quad (3)$$

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15. The image forming process cartridge according to claim 9, wherein the charging member is disposed opposite to the image carrier spaced by a minute gap.

15 16. The image forming process cartridge according to claim 9, wherein the charging member comprises a rotatable charging roller.

17. The image forming process cartridge according to claim 9, further comprising:

a cleaning member configured to clean the charging member;
and

at least one contact member in contact with a surface of the image carrier,

$$9 \leq f/v \leq 15. \quad (2)$$

22. The image forming apparatus according to claim 20,
wherein the relationship (1) is satisfied at least when the
5 charging member charges an image forming area of the image
carrier.

23. The image forming apparatus according to claim 21,
wherein the relationship (2) is satisfied at least when the
10 charging member charges an image forming area of the image
carrier.

24. The image forming apparatus according to claim 20,
wherein a following relationship is satisfied when the charging
15 member charges an area of the image carrier other than an image
forming area of the image carrier:

$$0.5 \leq f/v \leq 7. \quad (3)$$

25. The image forming apparatus according to claim 21,
20 wherein a following relationship is satisfied when the charging
member charges an area of the image carrier other than an image
forming area of the image carrier:

$$0.5 \leq f/v \leq 7. \quad (3)$$

26. The image forming apparatus according to claim 20,
wherein the charging member is disposed opposite to the image
carrier spaced by a minute gap.

5 27. The image forming apparatus according to claim 20,
wherein the charging member comprises a rotatable charging
roller.

28. The image forming apparatus according to claim 20,
10 further comprising:
a cleaning member configured to clean the charging member;
and
at least one contact member in contact with a surface of
the image carrier.

15 29. The image forming apparatus according to claim 20,
wherein the image carrier comprises a photoreceptor that
includes a surface layer made of amorphous-silicon.

20 30. The image forming apparatus according to claim 20,
wherein the image carrier comprises a photoreceptor that
includes a surface layer in which filler is dispersed.

31. An image forming process cartridge for use in a main
25 body of an image forming apparatus, comprising:
image carrying means for carrying an image; and

charging means for charging the image carrying means, the charging means being applied with a voltage including an alternating current voltage superimposed on a direct current voltage,

5 wherein a following relationship is satisfied:

$$7 \leq f/v \leq 17 \quad (1)$$

where "f" is a frequency (Hz) of the alternating current voltage, and "v" is a moving speed (mm/sec) of the image carrying means,

10 wherein the image carrying means and the charging means are integrally accommodated in the image forming process cartridge, and the image forming process cartridge is detachably attached to the main body of the image forming apparatus.

15 32. The image forming process cartridge according to claim 31, further comprising:

first cleaning means for cleaning the charging means; and
second cleaning means for cleaning a surface of the image carrying means,

20 wherein the first cleaning means and the second cleaning means are integrally accommodated in the image forming process cartridge.

33. An image forming apparatus comprising:

25 image carrying means for carrying an image; and

charging means for charging the image carrying means, the charging means being applied with a voltage including an alternating current voltage superimposed on a direct current voltage,

5 wherein a following relationship is satisfied:

$$7 \leq f/v \leq 17 \quad (1)$$

where "f" is a frequency (Hz) of the alternating current voltage, and "v" is a moving speed (mm/sec) of the image carrying means.

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34. The image forming apparatus according to claim 33, further comprising:

first cleaning means for cleaning the charging means; and

second cleaning means for cleaning a surface of the image

15 carrying means.

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